

Commonwealth of Kentucky
Division for Air Quality
PERMIT STATEMENT OF BASIS

DRAFT

Title V / Synthetic Minor, Operating

Permit: V-07-028

Kentucky State Reformatory

LaGrange, KY 40032

June 20, 2007

Lisa Beckham, Reviewer

SOURCE ID: 21-185-00012

AGENCY INTEREST: 8027

ACTIVITY: APE20070004

SOURCE DESCRIPTION:

On May 15, 2007 Kentucky State Reformatory (KSR) submitted an application for a renewal Title V/Synthetic Minor permit. KSR currently operates three (3) boilers with a total heat input capacity of 193 MMBtu/hr at their correctional facility in LaGrange, Kentucky. Additionally, the facility has two paint lines for painting license plates and metal cabinets/panels and an autobody paint training shop.

The application was submitted in response to a Notice of Violation issued to the facility on February 14, 2007. The violations addressed with the current application include: failure to submit an application for renewal 6-months prior to expiration (Permit V-02-002 expired April 15, 2007) and replacing the solvent based paint line with an electrostatic powder paint line (including drying and curing ovens) without prior approval from the Division. In addition to correcting the above violations KSR has also requested: the removal of Emission Units 01 and 02 from the permit since they were removed from the facility in 2002, addition of an existing insignificant burnoff oven that was not included with previous permit applications and addition of an insignificant autobody paint training shop with a maximum paint use of 60 gallons per year.

EMISSION AND OPERATING CAPS DESCRIPTION:

- a. To preclude applicability of 401 KAR 51:017, Prevention of Significant Deterioration of Air Quality, total source-wide consumption of No. 2 fuel oil shall not exceed 5,700,000 gallons per year on a twelve-month rolling total.
- b. To preclude applicability of 401 KAR 51:017, Prevention of Significant Deterioration of Air Quality, the sulfur content of No.2 fuel oil shall not exceed 0.5 percent by weight. Compliance can be assured through fuel supplier certification.
- c. To preclude applicability of 401 KAR 51:017, Prevention of Significant Deterioration of Air Quality, total source-wide emissions of sulfur dioxide shall not exceed 225 tons per year based on a twelve month rolling total.

COMMENTS:

Applicable Regulations:

401 KAR 59:015, New indirect heat exchangers, applicable to an emissions unit with a capacity of less than 250 MMBtu/hr which commenced on or after April 9, 1972. Applies to EU 03, 08, and 09.

401 KAR 60:005, incorporating by reference 40 CFR 60, Subpart Dc, Standards of performance for small industrial-commercial-institutional steam generating units, applies to each steam generating unit commenced after June 8, 1989 that has a maximum design heat input capacity between 10 and 100 MMBtu/hr. Applies to EU 03, 08, and 09.

401 KAR 59:010, New process operations, applicable to emission units commenced after July 2, 1975. Applies to EU 04.

Non-Applicable Regulations:

401 KAR 51:017, Prevention of Significant Deterioration of Air Quality

Significant Activities:

Emission Units 03, 08, and 09

Three Indirect Heat Exchangers

Rated Capacity:

EU 03 - 53 MMBtu/hr

EU 08 - 70 MMBtu/hr

EU 09 - 70 MMBtu/hr

These units use natural gas a fuel source with No. 2 fuel oil as a backup fuel source. Emission factor information for these units was taken from AP-42 Section 1. To preclude applicability of 401 KAR 59:017 the sulfur content of No.2 fuel oil shall not exceed 0.5 percent by weight and source-wide use of No. 2 fuel oil shall not exceed 5,700,000 gallons on a twelve-month rolling total.

Pursuant to 401 KAR 59:015, Section 4(1)(c), particulate emissions for each unit shall not exceed 0.10 lb/MMBtu based on a three-hour-average.

Pursuant to 401 KAR 59:015 and 40 CFR 60.43c (c), no owner or operator shall cause to be discharged into the atmosphere any gases that exhibit greater than 20 percent opacity (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity.

Pursuant to 401 KAR 59:015, Section 4(2)(c), emissions shall not exceed twenty (20) percent opacity based on a six-minute average except during building a new fire for the period required to bring the boiler up to operating conditions provided the method used is that recommended by the manufacturer and the time does not exceed the manufacturer's recommendations.

Pursuant to 401 KAR 60:005, incorporating by reference 40 CFR 60, Subpart Dc, sulfur dioxide emissions shall not exceed 0.80 lb/mmBTU.

Pursuant to 401 KAR 60:005, incorporating by reference 40 CFR 60.43c (d), the PM and Opacity standards apply at all times except during periods of startup, shutdown, or malfunction.

Emission Unit 04

Roll Paint Machine

This process includes a roll paint machine similar to an ink-printing machine followed by a drying and curing oven that is gas fired. The license plates are transferred through the roll paint machine and curing oven on a flat conveyor. Paint use is approximately 1 gallon/day (based on a 5 hour work day). This unit shall be maintained and operated according to manufacturer's specifications and recommendations. Emission factor information was based on chemical supplier information and assumed 100% loss of VOC/HAPs (except for the phosphoric acid used in the wash, which assumed 3%).

Pursuant to 401 KAR 59:010, Section 3(2), particulate emissions from the stack shall not exceed $[3.59(P)^{0.62}]$ pound per hour based on a three-hour average where P is the weekly average processing rate in tons per hour. If the process rate weight is 1,000 lbs/hr or less than the limit on particulate matter emissions is 2.34 lbs/hr.

Pursuant to 401 KAR 59:010, Section 3(1)(a), any continuous emissions into the open air shall not exceed twenty (20) percent opacity based on a six-minute average.

Emission Unit 10 (DG 01-09)

9 Emergency Diesel Generators

Each unit is limited to 500 hours of operation based on a twelve-month rolling total. There are no applicable regulations for this unit; however, fuel usage must be recorded to calculate sulfur dioxide emissions for the source-wide emissions cap on sulfur dioxide.

Insignificant activities:

Powder Paint Line:

The new powder paint line classifies as an insignificant activity according to the Division's approved list of insignificant activities. Powder coating booths are considered insignificant provided they are equipped with an appropriately designed and operated particulate control device. This process is equipped with filter cartridges that are 99% efficient and recycle collected powder back to the powder paint line. With proper filter operation and recycle annual potential emissions of particulates is less than 0.2 tons per year.

Roll Paint Oven:

This 0.5 MMBtu/hr unit was previously Emission Unit 06, but this unit classifies as insignificant according to the Division since it is a gas-fired oven rated at less than 1 MMBtu/hr. (In the previous permit there were 2 roll paint ovens, but one has been removed from the facility.)

Washer Burner Ovens (2) and Powder Paint Dryoff Oven:

The 0.8 MMBtu/hr washer burner ovens classify as insignificant since each is a gas-fired oven rated at less than 1.0 MMBtu/hr. The powder paint dryoff oven classifies as insignificant since emissions from each criteria pollutant is less than 5 tons per year and HAP emissions are less than 0.5 tons per year.

Burnoff Oven:

This 0.1 MMBtu/hr oven was left out of previous permit applications. This unit classifies as insignificant according to the Division since it is a gas-fired oven rated at less than 1 MMBtu/hr.

Autobody Paint Training Operation:

It is estimated that paint use from this operation will not exceed 60 gallons per year. This unit is classified as insignificant provided the surface coating operation is equipped with properly designed and operated particulate control devices and uses less than five gallons per day of air-dried coating material, verifiable by appropriate records.

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.